

# **Fast Facts on Data Collection via Direct Measurements of Behavior**

*Denise Keller*

***What is behavior data?*** Behavior data is the product of measuring and recording behavior.

***What is behavior data used for?*** Behavior data can serve many functions. It can be used to establish a baseline of the target behaviors to increase or decrease. Data can give us information on when and where behaviors are most likely to occur, as well as how often, how long, how much, how intense and with whom and as a result of what. Data can be an objective means of providing information to the student, staff, families, and administrators. Behavior data allows for the comparison of behavior pre and post intervention. The analysis of data tells us whether our interventions are effective and should guide our decisions on making changes to a program, including whether to continue with an intervention.

***What is a direct measurement of behavior?*** Direct measurement of behavior is accomplished through the direct measurement of permanent products and through direct observational recording.

***When do we use measurements of permanent products?*** According to Cooper, Heron and Heward (pg. 61), there are two rules to be considered when using permanent products for data collection. Rule 1: "Each occurrence of the target behavior results naturally in the same permanent product...such as answers on a worksheet. Rule 2: "...the product can be produced only by the target behavior" (P. 61)

***When do we use direct observational recording?*** When the behavior can be observed

***What are the procedures for collecting data through direct observation?*** The most commonly used procedures for school settings include event recording, interval recording, duration recording, latency recording, and momentary time sample recording. ABC Charts are also commonly used.

***What are the differences and how do I know when to use which procedure?***

**Event Recording** is a tally or count of behaviors as they occur. It is used when it is important to know the number of times a behavior occurs. To use, a target behavior should have a definite, observable beginning and ending and should not occur at high rates. Behaviors measured using event recording should be ones that occur for short periods of time, such as raising one's hand, rather than for extended periods, such as reading or playing. The number of occurrences of a behavior can be easily and unobtrusively recorded using a hand tally counter, making marks on masking tape applied to clothing, a desk or wrist, transferring pennies, buttons, or other small object from one pocket to another.

**Latency Recording** is the measurement of the length of elapsed time between the onset of a stimulus and the occurrence of a behavior. Latency recording is typically used when we want to decrease the amount of time it takes for a student to respond to an instruction or other stimulus, such as time it takes to get started on an assignment following a direction or to give a verbal response following a question. Latency can be measured using a stopwatch that is started when the stimulus is provided and stopped when the desired behavior begins.

**-Interval Recording** is used to measure the presence or absence of behavior within specific time intervals. The observation period is divided into equal time periods, such as 5 minute intervals. Interval recording is useful for estimating the number of occurrences and/or duration of behavior and can be used for high frequency behaviors. There are two kinds: Partial-interval recording and Whole-interval recording.

**-Partial-Interval Recording:** Records whether the behavior was present or absent at any time during the interval (not concerned with how many times the behavior occurred). A data sheet divided into the appropriate intervals is used to record occurrences of the behavior. This procedure tends to produce a slight overestimate of the presence of the target behavior and should therefore be used when the goal is to produce a behavior reduction.

**-Whole-Interval Recording:** The behavior is only recorded if it is present throughout the entire interval. This procedure tends to produce a slight underestimate of the presence of the target behavior and should be used when the goal is to produce an increase in behavior. Both partial-interval and whole-interval recording requires that someone experienced in taking data is able to fully attend to the student during the time recording is taking place. A stop watch or other timing device, such as a digital kitchen timer, is needed along with a pencil and paper divided into the desired intervals to record on.

**-Momentary Time Sampling** records the presence or absence of behaviors immediately following specified time intervals. This is sometimes easier for teachers to use as observation takes place only momentarily at set intervals. For example, every 15 minutes the teacher may look to see if a student (s) is on task. Momentary time sampling provides an estimate of the number of occurrences and can also be used to estimate the duration of a behavior.

**-Duration Recording:** When it is important to know how long a behavior occurs, either to target an increase or decrease in behavior, duration recording can also be used. It is more precise than momentary time sampling or interval recording. Duration recording records the total time or percent of time that a behavior occurs within a specified time period. Duration recording can be used to measure behaviors emitted at high rates. Behavior is measured from the moment of onset until the moment it stops. A stop watch or other clock that can measure in seconds is needed.

**A-B-C Recording** During direct observation, the operationally defined target behavior is recorded along with the antecedent (stimulus that preceded/ triggered the behavior) and consequence that followed/was the result of the behavior. Additionally, any behavior that resulted from consequence can also be recorded. Antecedents, behavior and consequence are often recorded in narrative form.

### **What is a scatter plot and how do you use it?**

(From Special Connections [www.specialconnections.ku.edu/](http://www.specialconnections.ku.edu/))

"The scatter plot is an interval recording method that can help you discover patterns related to a problem behavior and specific time periods. The scatter plot is a grid with time plotted on the vertical line divided into periods of time. For instance, the time listed on the grid might be divided into 15-minute periods. The first time on the grid could be listed as 9:00-9:15, the next as 9:15-9:30, and followed by 9:30-9:45. In another situation it may be more useful to use 30 minute or 1-hour periods depending upon the type of behavior and the length of time you are observing. The horizontal line on the scatter plot grid designates the date the observation occurs."

Data taken from ABC charting can be transferred to a scatter plot form for a quick visual display of the data.

## **How to Use Behavioral Recording (From Dr. Mac's excellent website listed below)**

1. Define the behavior that you wish to observe. Be very specific. Be sure that your definition is so narrow in scope that others would observe only what you had in mind.
2. Decide which type of behavioral recording is best suited to monitor the behavior.
3. Decide when you will observe the behavior. Do you want to observe the behavior in a number of situations or just one (e.g., math class, story time)?
4. Decide how long each of your observations will last. Ten to twenty minutes is usually adequate, but the more time you spend observing, the more accurate will be your results. Repeat your observations at least three more times to give a more representative picture.
5. Observe and record the student's behavior.
6. If you used frequency recording, figure the average number of occurrences per minute, hour, or day. If you used duration recording, figure the percentage of the total observation time that the behavior occurred. If you used momentary time sampling, figure the percent of intervals when the behavior was occurring. Plot the occurrence rate on a graph.

## **References**

Cooper, Heron and Heward (1987) Applied Behavior Analysis. Columbus, Ohio: Prentice-Hall

Thomas McIntyre:

[http://maxweber.hunter.cuny.edu/pub/eres/EDSPC715\\_MCINTYRE/715HomePage.html](http://maxweber.hunter.cuny.edu/pub/eres/EDSPC715_MCINTYRE/715HomePage.html)

Special Connections: [www.specialconnections.ku.edu/](http://www.specialconnections.ku.edu/)

## **Links for Information on Data Collection and Data Collection Forms**

Antecedents, behavior and consequence are recorded in narrative form.

<http://www.polyxo.com/documents/>

<http://cecp.air.org/fba/problembehavior2/direct2.htm>

[http://maxweber.hunter.cuny.edu/pub/eres/EDSPC715\\_MCINTYRE/715HomePage.html](http://maxweber.hunter.cuny.edu/pub/eres/EDSPC715_MCINTYRE/715HomePage.html) (Dr. Mac)

<http://www.specialconnections.ku.edu/cgi-bin/cgiwrap/speconn/main.php?cat=assessment&section=main&subsection=ddm/main>